

WHAT IS CLAIMED IS:

1. A method of manufacturing a magnetic recording medium, comprising the sequential steps of:
 - (a) providing a non-magnetic substrate for a magnetic recording medium, said substrate including at least one major surface;
 - 5 (b) forming a layer of a sol-gel on said at least one major surface of said substrate;
 - (c) forming a pattern in an exposed surface of said layer of said sol-gel; and
 - (d) converting said layer of said sol-gel to a glass or glass-like
- 10 layer while preserving said pattern in an exposed surface of said glass layer.
2. The method according to claim 1, wherein:
step (a) comprises providing a disk-shaped, high modulus substrate having a pair of major surfaces and comprised of a glass, ceramic, or glass-ceramic material.
3. The method according to claim 1, wherein:
step (b) comprises forming said layer of said sol-gel by spin coating a solution of said sol-gel on said at least one major surface of said substrate.
4. The method according to claim 1, wherein:
step (c) comprises embossing a servo pattern in said exposed surface of said layer of said sol-gel by applying thereto a surface of a stamper, said surface of said stamper including a negative image pattern of said servo pattern.
5. The method according to claim 4, wherein:
step (b) comprises forming a layer of a hydrophilic sol-gel on said at least one major surface of said substrate; and
step (c) comprises embossing utilizing a stamper wherein at least said 5 patterned surface thereof is formed of a hydrophobic material.

6. The method according to claim 5, wherein:

step (c) comprises utilizing a stamper wherein at least said patterned surface thereof is formed of a hydrophobic polymeric material.

7. The method according to claim 6, wherein:

step (c) comprises utilizing a stamper wherein said hydrophobic polymeric material is an amorphous thermoplastic material.

8. The method according to claim 5, wherein:

step (c) comprises utilizing a stamper having a main body comprised of a first metal and said patterned surface thereof is formed of a second metal, carbon, or a hydrophobic polymer.

9. The method according to claim 8, wherein:

step (c) comprises utilizing a stamper wherein said main body is comprised of nickel and said patterned surface thereof is formed of platinum, carbon, or a sputtered hydrophobic polymer.

10. The method according to claim 1, wherein:

step (d) comprises sintering said layer of sol-gel at an elevated temperature.

11. The method according to claim 10, wherein:

step (b) comprises forming a layer of a sol-gel comprising a porous layer of SiO₂ containing water and at least one solvent in the pores thereof; and

5 step (d) comprises converting said layer of sol-gel to said glass or glass-like layer by driving out said water and said at least one solvent from said pores by sintering said layer of sol-gel at a temperature of from about 300 to above about 1000°C.

12. The method according to claim 1, further comprising the step of:

(e) forming a stack of thin film layers over said exposed surface of said glass or glass-like layer, said stack of layers including at least one ferromagnetic layer.

- 5 13. A magnetic recording medium, comprising:
- (a) a non-magnetic substrate having at least one major surface;
 - (b) a sintered glass or glass-like layer formed on said at least one major surface, said sintered glass or glass-like layer including an upper surface having an embossed pattern formed therein; and
 - (c) a stack of thin film layers formed over said upper surface of said sintered glass or glass-like layer, said stack of layers including at least one ferromagnetic layer.

14. The magnetic recording medium as in claim 13, wherein:
said non-magnetic substrate (a) is disk-shaped with a pair of major surfaces and comprised of a high modulus material selected from glass, ceramic, and glass-ceramic materials.

15. The magnetic recording medium as in claim 13, wherein:
said sintered glass or glass-like layer (b) is derived from a sol-gel layer and includes an embossed servo pattern formed therein.

16. A stamper for embossing a servo pattern in a surface of a layer of a hydrophilic sol-gel formed on a surface of a substrate for a magnetic recording medium, comprising:

- (a) a main body having an embossing surface including a negative image of said servo pattern; and
- (b) means for facilitating release of said embossing surface of said stamper from said surface of said layer of sol-gel subsequent to embossing of said servo pattern.

17. The stamper as in claim 16, wherein said main body and said embossing surface are formed of a hydrophobic polymeric material.

18. The stamper as in claim 17, wherein said hydrophobic polymeric material comprises an amorphous thermoplastic material.

19. The stamper as in claim 16, wherein said main body is formed of a first metal and said embossing surface is formed of a second metal, carbon, or a hydrophobic polymer.

20. The stamper as in claim 19, wherein said first metal is nickel and said embossing surface is formed of platinum, carbon, or a sputtered hydrophobic polymer.